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ABSTRACT

This paper considers the viability and applicability of student learning outcomes used as a measure of professorial productivity. While student learning outcomes need to be assessed in order to evaluate faculty productivity, examination of student learning as a concept reveals the difficulty of finding consensus on how to define it. The issue is further complicated by the challenge of how to best educate a diverse student body, as well as by factors that affect the campus environment, such as alcohol abuse, violence, racism, and sexism. Another variable affecting learning outcomes is students' willingness to take responsibility for their own learning. And while faculty involvement in research and writing stimulates classroom intellectual climate, students learn as a result of all types of faculty activity--advising, new teaching technologies, or faculty involvement in campus concerns, and it is difficult to evaluate faculty on the basis of all these components. The paper concludes that appropriate assessment methods are needed, and that student learning outcomes should not be the only basis upon which colleges base faculty rank, tenure, or promotion. Student learning outcomes need to be institution-specific, and internal assessment mechanisms must be established to measure them. (Contains 27 references.) (SW)

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The Measure of Professorial Productivity: Using Student Learning Outcomes Criteria

by

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Prepared for presentation at the annual meeting of the Association for the Study of Higher Education, Albuquerque, November 6-9, 1997.

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This paper was presented at the annual meeting of the Association for the Study of Higher Education held in Albuquerque, New Mexico, November 6-9, 1997. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

Introduction

> A paradigm shift is taking hold in American higher education. ...the paradigm that has governed our colleges is this: A college is an institution that exists *to provide instruction*. Subtly but profoundly we are shifting to a new paradigm: A college is an institution that exists *to produce learning*. (Barr & Tagg, 1995, p. 13).

The influence of external constituents on this change cannot be ignored, as the expectations of parents, employers, and communities increasingly emphasize the role of the academy in meeting the needs of our complex society. Ewell (1994) writes, "The time is long past when we will be allowed to assess success only against goals that we ourselves establish" (p. 28). The long-standing debate over the epistemological vs. political purposes of higher education (Brubacher, 1988) has given way to the pressures of a society at risk. Gardiner (1994) calls attention to the resulting "radical shifts in the social purposes of a college education" (p. xi), and cites changing academic standards, curriculum and instruction, faculty and administrative roles, and political agendas on campuses as evidence of powerful external influences.

According to Gardiner (1994), leaders of government and private enterprise now look to colleges and universities to prepare graduates to face the challenges of world problems and today's international marketplace. Gardiner (1994) raises the question, "How closely do the outcomes we in the academy desire for our students compare with the abilities required today in the

world of work?" (p. 7). He maintains that graduates need complex cognitive abilities, integrated affective sensibilities and consistent self-management skills to facilitate their decision making, problem solving and ethical reasoning.

The role of the faculty in developing these essential competencies and in producing learning is not clearly defined. Consequently, a faculty reward system that relies on the assessment of these competencies to guide decisions regarding rank, tenure and promotion is questionable. While this issue continues to be debated in higher education circles, students are still experiencing their college education with varying degrees of success and levels of learning.

While the topics of tenure and student learning appear frequently in the higher education literature, they are rarely discussed in relationship to each other. It is the intent of this paper to examine the viability and applicability of student learning outcomes as a measure of professorial productivity.

Several aspects of this problem are examined. First, since student learning outcomes must be assessed to be of value in evaluating productivity, the fact that faculty are not typically trained in outcomes assessment (or development, for that matter) presents a significant problem. Defining and understanding the nature of student learning is an essential prerequisite to any outcomes planning and assessment. Therefore, a brief examination of student learning as a concept is presented, along with perspectives on the influences of changing demographics, campus

environment, and on the importance of students accepting responsibility for their own learning.

Second, faculty roles are examined within the context of a model of institutional productivity (Michael, 1996) to provide a perspective on the importance of student learning among competing faculty priorities. As Boyer (1990) writes, "it is time to ask how priorities of the professoriate relate to the faculty reward system, as well as to the missions of America's higher learning institutions" (p. 2). The appropriateness of using student learning outcomes as indicators of faculty competency is addressed.

Finally assessment issues related to teaching and learning and assessment methods are discussed. Since institutional attempts to assess student learning outcomes are sporadic and inconsistent, it is important to understand the problems and implications of this process.

Student Factors

Student Learning

A clearly articulated consensus on the definition of college student learning does not exist. However, most attempts to define this phenomenon indicate that student learning is reflected in changes in cognitive, affective, behavioral, social, vocational, moral, and physical elements of human functioning. The ability to engage in critical thinking and to apply ethical reasoning to relevant situations and problems is also an essential component of student development (Astin, 1993; Chickering & Reisser, 1993;

Gardiner, 1994; Love & Goodsell Love, 1995; Pascarella & Terenzini, 1991).

The extensive and comprehensive review by Pascarella and Terenzini (1991) in How College Affects Students documents the "changes in students' attitudes and values in five general areas: 1) cultural, aesthetic, and intellectual; 2) educational and occupational; 3) social and political; 4) religious; and 5) sex and gender roles" (p.325). According to the authors, "students not only make statistically significant gains in factual knowledge and in a range of general cognitive and intellectual skills; they also change on a broad array of value, attitudinal, psycho-social, and moral dimensions" (p. 557). While the specific categories included in descriptions of student learning may vary among researchers, emphasis consistently focuses on holistic changes in the individual.

Gardiner (1994) outlines four areas of student development essential for the critical knowledge, skills and dispositions required for competent functioning in society: 1) abstract reasoning, 2) epistemology, 3) ethical reasoning, and 4) cooperative interpersonal ability. He notes that, "faculty agree almost universally that the development of students' higher-order intellectual or cognitive abilities is the most important educational task of colleges and universities" (p. 7). He also maintains that a student's affective development, general and discipline specific knowledge, moral judgments, and the ability to apply them all are significant to students' overall success.

Gardiner (1994) also identifies four key influences on the quality of student learning and development: 1) curriculum, 2) instruction, 3) campus psychological climate, and 4) academic advising. Each of these influences represents a complex set of student experiences and interactions. These elements are further complicated by the affects of a changing student population.

Changing Demographics

Gardiner (1994) suggests a need for educators and the educational system to adapt to the changing nature of students on their campuses. Given the demographics of today's college students, serious implications for higher education faculty emerge. The process of designing and measuring student learning outcomes is difficult in and of itself. When the variables associated with underprepared students, students with special needs and students with unique learning styles are added, the task is even more daunting.

These changing demographics present unique challenges for faculty and administrators. Increased numbers of women, students of color, part-time students, adult students, disabled students, and underprepared students changed campus environments faster than most campuses could adjust their curriculum, services, and programs (Gardiner, 1994).

The fact that access to higher education is now open to a broader segment of the population increases the need for changes in instruction and support services provided by faculty. Gardiner (1994) predicts that, "the current professoriate will require significant assistance in developing the diverse professional

knowledge and skills now required to educate our students" (vii). It is imperative for faculty and staff to continue their attempts to address the issues associated with educating such a diverse student body. However, the implications of these changes on faculty development and on the ability of faculty to address students' learning needs should provide a cautionary note for those who expect the faculty reward system to reflect a focus on learning outcomes. Attempts to meet the challenges of diverse students are further complicated by numerous other variables affecting the campus environment.

Campus Environment

The changing student body both influences and is influenced by the campus environment. A strong correlation exists between the campus climate and student learning (Pascarella & Terenzini, 1991). The negative effects of alcohol abuse, violence, racism, and sexism can be devastating to student success. Conversely, a climate which provides the necessary challenges and supports can improve a student's chances for success. In addition, the impact that faculty cam have in creating a learning-supportive campus climate is significantly underestimated. Faculty play an important role in influencing the overall campus climate and in creating a culture conducive to learning (Gardiner, 1994; Pascarella & Terenzini, 1991). However, students' willingness to take responsibility for their own learning often limits the extent to which faculty efforts affect change.

Student Responsibility for Learning

In regard to student responsibility for learning, the

research indicates that the majority of undergraduate students expend limited effort outside the classroom (Gardiner, 1994; Pascarella & Terenzini, 1991). The extent and the quality of student effort cited in Pascarella and Terenzini (1991) reflect the work of Pace on student involvement in the learning process: "What a student gets out of college is dependent not only upon what the college does or does not do but also on the extent and quality of effort that the student puts into college" (p. 99). Davis and Murrell (1993) connect the work of Tinto, Pascarella, Astin, and Pace, among others, to confirm the students' responsibility for their own learning. Acknowledging the fact that the campus culture and climate, as well as students' previous experiences, may affect students' investment in their own learning, students' effort in the educational process stands out as a significant variable in student learning outcomes.

Faculty Roles

In a model constructed to guide the comprehensive assessment of institutional productivity, Michael (1996) indicates that the professoriate should be evaluated in three distinct, yet overlapping areas: 1) research productivity; 2) instructional productivity; and 3) service productivity. If faculty were to be evaluated according to student learning outcomes, one might assume that such outcomes are a result of instructional productivity alone. The inclination might be to ignore the influence of faculty research and service activities on student learning.

Boyer (1990) offers four similar categories of professorial scholarship: 1) discovery, 2) integration, 3) application, and 4)

teaching. He emphasized that "what we urgently need today is a more inclusive view of what it means to be a scholar -- a recognition that knowledge is acquired through research, through synthesis, through practice, and through teaching" (p. 24). Although institutional classification often affects faculty priorities (Birnbaum, 1988), according to Boyer (1990) a majority of faculty agree that "teaching effectiveness, not publication, should be the *primary* criterion for promotion" (p. 29-31). Regardless of the model of professorial productivity that is used, the work of the faculty is clearly multidimensional, with overlapping functions that are difficult to isolate and subsequently difficult to effectively measure. Teaching and advising have the most direct impact, while the activities associated with research and institutional service are more subtle.

For the purposes of this analysis, Michael's (1996) categories for the faculty roles of research and instructional productivity are used. The issues of service productivity and of instructional productivity in the areas of technology and employer's satisfaction are not addressed in this paper (see Appendix for complete model). However, it is important to recognize the broad scope of the criteria (including the categories not being used in this analysis) that are used to evaluate faculty productivity.

Research

The purposes of and skills used in scholarship and research are an integral part of the institutional framework, and affect

student learning outcomes in a variety of ways. Although research suggests otherwise (Gardiner, 1994), the subtle influence of quality scholarly activities and the ensuing changes in the knowledge base and increase in institutional resources, impact students' understanding of their world and/or their discipline.

According to Gardiner (1994), the traditional emphasis on faculty research does not have a positive impact on undergraduate education. He contends that

> the knowledge, skills, values and dispositions that underpin creation of knowledge in a specialized subdiscipline are usually very different from those required for competence in nurturing human development. (p. 141)

The assumption here seems to be that faculty whose primary focus is on research are not likely to be a positive influence on student learning, when in fact, faculty fulfill multiple roles and are evaluated according to a complex set of criteria (Michael, 1996). Faculty involvement in their own research and writing, in professional development and in service activities stimulates the intellectual climate of the institution and of the classroom (Boyer, 1990). In a newly released study on the relative importance of research and teaching, Gray (1996) noted that "many respondents made the case that their research and teaching roles and activities cannot be separated -- that they coexist so as to make them 'scholars'" (p. 19). Teaching is affected by a variety of scholarly activities, including research, writing, and application of knowledge. In essence, research has the power to inform teaching.

Instructional Productivity

Curriculum. If, according to the comprehensive assessment model of institutional productivity (Michael, 1996), the faculty influence or have direct control of the curriculum, and the curriculum in turn influences student learning (Gardiner, 1994), then it follows that the faculty impact student learning through the curriculum. Certainly, the influence of external pressures from legislatures and from the students themselves are additional variables. However, as Gardiner (1994) indicates, if the curriculum has appropriate "rigor, depth and balance" (p. 25), then the quality of student learning will be positively influenced.

Appropriate pedagogy in teaching and advising. The examination of the research on teacher behavior and its effects on student *subject matter learning* has certain limitations. While reiterating the important role of faculty in the learning process, it neglects the broader dimensions of student learning outlined earlier. Nevertheless, the positive influences of teacher clarity and student-faculty interaction are clearly indicated in the research reviewed by Pascarella and Terenzini (1991). The authors emphasize the evidence of faculty impact on all aspects of student growth and development and call for faculty to accept responsibility for influencing students' lives.

The literature in student development theory (Astin, 1993; Kuh, Schuh, Whitt, & Associates, 1991; Pascarella & Terenzini, 1991) also indicates that student learning outcomes can be positively affected by faculty, whether in or out of the

classroom. "Student-faculty interaction has significant positive correlations with every academic attainment outcome" (Astin, 1993, p. 383). With such strong evidence of the power of faculty to affect the course of student learning, the evaluation of teaching practices seems a natural and appropriate course of action.

Gardiner (1994) provides a comprehensive definition by which to evaluate teaching approaches. He asks,

> To what degree are the courses we teach characterized by clearly defined outcomes, effective means of assessing results, and timely feedback for students on their progress; high expectations; a challenging environment for the development of higher-order skill; and a sustained high level of diverse and active involvement in learning for students? (p. 37)

A majority of faculty still use lecture methods as their predominant form of conducting their classes (Gardiner, 1994), a form contradictory to everything that we currently know about student learning (Astin, 1993; Love & Goodsell Love, 1995; Pascarella & Terenzini, 1991) "While well-prepared lectures surely have a place, teaching, at its best, means not only transmitting knowledge, but *transforming* and *extending* it as well" (Boyer, 1990, p. 24). Gardiner (1994) proposes that

> our instruction needs to be carefully designed so that, wherever he or she is developmentally situated, a student can engage in personally meaningful activities in a broad diversity of disciplinary, moral, emotional, and social

contexts that can ease movement toward the next higher level of complexity. (p. 19)

The sources of influences on student learning extend far beyond the classroom (Love & Goodsell Love, 1995; Terenzini, et al., 1996). For example, a majority of campuses expect faculty to advise students, yet faculty have limited training. Academic advising is not a high priority in the reward system for faculty and is seldom developmental in nature (Gardiner, 1994); yet, Pascarella and Terenzini (1991) indicated that the role of faculty as academic advisors is significant to student success and persistence. Chickering (as cited in Gardiner, 1994) likened advising to teaching: "This is probably the most important kind of teaching we do" (p. 88). Unfortunately, advising is often limited to assistance with course planning, while ignoring the more valuable influences of the its mentoring opportunities.

Students learn as a result of all types of faculty activity, whether it be through advising or the through the acquisition of new knowledge generated by faculty research, new technologies available for teaching, individual faculty development, or faculty involvement in campus or community concerns. If faculty have such a profound influence on student development of all kinds, then it makes sense for faculty to be held accountable for the nature of that influence and the accomplishment of intended outcomes. However, evaluating faculty on the basis of all these components is not something higher education is prepared to do. Without the availability of appropriate assessment methods, student learning outcomes should not be the only thing upon which the academy bases

faculty rank, tenure, and promotion. Although an increasing emphasis is placed on faculty responsibility to impact student learning, some balance must be maintained among the other essential functions of the professoriate. Faculty need to be evaluated on their contributions to their discipline, their students *and* the campus community.

Assessment

Teaching vs. Learning

Even the researchers who extol the importance of defining and assessing student learning outcomes admit to the limitations of such efforts (Gaither, Nedwek & Neal, 1994; Gardiner, 1994). "Assessments of the source and quality of student learning outcomes... are particularly difficult to determine" (Gaither, et al., 1994, p. 8). Consequently, student learning outcomes per se, are infrequently included as performance indicators. Rather, the persistence and completion rates, graduate school acceptances, and job placement are employed to evaluate institutional effectiveness. Love & Goodsell Love (1995) argue that our current definition of and assumptions about assessment need to be transformed. A distinction needs to be made between teaching effectiveness and student learning outcomes.

The evaluation of faculty should begin to use a framework of learning in addition to a framework of teaching. Evaluation of teaching presently involves student and institutional reports of the content and delivery of material presented, the equitable evaluation of student work, teacher enthusiasm and creativity, preparation for class and availability outside of class. However,

these factors "do not raise the issue of whether students are learning, let alone demand evidence of learning or provide for its reward" (Barr & Tagg, 1995, p. 17). Gardiner (1994) also cautions that

> specifying and assessing outcomes does not tell the whole story. Necessary as it is, assessment of outcomes can tell us only *what* our results are and *how much* of them we have reached. It cannot tell us *why* we have reached them. We cannot identify the educational processes that caused the outcomes or determine whether we ourselves are even responsible for the results. (p. 126)

It would be inappropriate to base faculty rewards on such ambiguous criteria. Nevertheless, changes in tenure policies and practices indicate that institutions are moving forward on this issue.

Tenure Issues

Amid the current debate over tenure issues, the states of North Dakota, Florida, and Texas have made significant revisions to their tenure policies. Steps have been taken to institute post-tenure reviews for the purpose of monitoring performance and to afford newly hired faculty more involvement in designing the criteria by which their approval for tenure will be based (Haworth, 1996; Magner, 1996; Strosnider, 1996). This recent move in several states to alter the traditional criteria by which faculty rewards are determined may be an indication of the developing trends in tenure reform.

In a review of the original documents generated by the American Association of University Professors and the Association of American Colleges (1940 Statement of Principles, 1996) it becomes clear that tenure offers the freedom to teach what one desires, and to research what one values. There appears to be a fundamental contradiction between the nature of academic freedom and the process of external accountability that is beyond the scope of this paper; however, that contradiction suggests a philosophical dilemma for members of the academy to consider.

The Public Trust

An increasing level of public concern over higher education performance has served to increase the involvement of external agencies, particularly by government, in investigating the intended and achieved outcomes of colleges and universities (Ewell, 1994; Florida State Postsecondary Education Planning Commission, 1992; National Center for Educational Statistics, 1994; National Center for Educational Statistics, 1992; Paulson, 1990). The National Center for Educational Statistics (1992) indicates that "there is ample evidence that student outcomes are of interest and could be useful to consumers and financiers of postsecondary education for both consumer protection purposes and institutional accountability" (p. iv). The difficulty lies in determining if and how institutions should respond to this proposition.

Ewell (1994) suggests a focus on core values of higher education: "academic integrity and collective responsibility" (p. 28) to undergird the commitment for and process of *self* regulation

within the academy. The ensuing attention to internal accountability would not only improve the process for genuine assessment of student learning outcomes, but increase the potential for a renewal of the public trust in higher education.

Assessment Methods

Historically, numerous assessment methods have been employed in higher education, including classroom tests, grades, student self evaluations and surveys. In the absence of any kind of systematic assessment utilized across higher education, these methods provide insufficient information regarding the accomplishment of learning outcomes. Gardiner (1994) writes,

> No comprehensive national data on college outcomes are available. We have no national means of assessing and evaluating what students know and can do when they graduate from college, or how effective their institutions have been in educating them -- nor do most institutions know. (p. 54)

Certainly, there is sufficient and reliable research available on outcomes in general. In addition, research done on instructional methods has provided significant guidance in teaching approaches. The literature that does exist regarding the design of learning assessments often goes unnoticed by faculty who understandably focus more attention on the literature in their own discipline than on that of higher education (Gardiner, 1994).

Part of the problem lies in the absence of information regarding the effect of known and unknown variables on a student's ability, motivation, and proclivity for higher learning. Even though a university might have a curriculum with specified

outcomes that are regularly measured, uncertainty still exists as to whether and to what extent that university actually *causes* learning to take place. Furthermore, the proportion of the influence on students' learning that can be attributed to their higher education experience as compared to that of their other life experiences and previous knowledge is unclear.

Gardiner notes that "few colleges and universities have an accurate idea of their actual educational outcomes (what they want their graduates to know and to be able to do) or results, much less which curricular processes have produced them" (p. 25). Terenzini, Pascarella & Blimling (1996) raise another issue related to student-faculty interaction: "The causal direction of all these influences remains problematic, however. Are students who gain more in their cognitive capacities more likely to seek contact with faculty members, or does the contact promote the development?" (p. 155). The impact of the faculty-student relationship needs further study before it is used as a measure of professional merit.

Higher education is not prepared to evaluate faculty on the basis of such nebulous cause and effect relationships. Given the current state of affairs in higher education, it would be imprudent to do so before institutions are sufficiently prepared to employ reliable and consistent outcomes measurements. Student learning outcomes need to be institution specific, and internal assessment mechanisms must be established to measure them. The drive to implement student learning outcomes assessment processes

needs to come from the internal institutional community rather than external communities and government (Boyer, 1987).

Conclusions

Student Learning Outcomes and Faculty Productivity

According to Gardiner (1994), the key to improving student learning outcomes is in improving the educational processes within the institution, and creating a community focused on collaborative, caring connections between individuals: a unified effort in teaching and learning. Yet, contradictions in the realities of current institutional climates and particularly the tenure process, suggest otherwise. For example, in a recent examination of 48 tenure cases by the Chronicle of Higher Education, the talk of the need to reward teaching in the tenure process apparently fell on deaf ears. The most frequently cited reason for denial was insufficient research (Lederman & Mooney, 1996). Tenure awards are also withheld from faculty whose research or grants are accomplished on a collaborative basis (Leatherman, 1996).

It is clear that faculty influence student learning outcomes. How that takes place and to what extent remains unclear. Student learning outcomes *can* be measured; however, the cause of those outcomes is not fully understood. The accountability of higher education and its faculty for student learning and development is unquestionable; however, to what extent is yet to be determined.

In the face of such significant ambiguity about the nature and assessment of student learning, using learning outcomes as a measure of professional productivity is treacherous territory.

Faculty cannot be evaluated solely on the basis of their impact on student learning; and faculty are not exclusively responsible for that learning. Until reliable and consistent methods of assessment are available to measure the extent and source of student learning and development, institutions of higher education must be extremely cautious when using those outcomes as a measure of professorial productivity.

Student learning is undoubtedly *one* aspect of faculty productivity. However, it is also an indication of institutional productivity and priorities. Whether it is any more appropriate to use such outcomes as a measure of institutional productivity than it is to use them to measure professorial productivity is also in question. Student learning outcomes will probably not be used until an accurate and consistent means to measure institutional influence is developed.

Institutional Response

Just as students' differences (in learning styles, abilities, interests, etc.) should be considered and valued in the teaching-learning process, so too should the unique interests, talents and contributions of faculty be valued. It may be far more effective in influencing campus climate to accept that not all faculty possess the skills for teaching undergraduates or for academic advising, or for research. In Gray's (1996) study, "faculty suggested that their institutions could emphasize both vital activities by drawing on the differential strengths of faculty" (p. 19). One individual faculty member commented, "I do not think that teaching and research can be separated. Both need to be

supported and valued" (p. 19). As noted earlier, Gray's research demonstrates faculty support for an increased emphasis on teaching, along with the admonition that higher education "is not addressing the need for flexibility in faculty roles and rewards so as to support faculty as teachers and researchers. The institution(s) should give each faculty member the opportunity to bring out his/her talents in teaching, research, or both" (p. 19-20). Institutions of higher education should be extremely conscientious when building, maintaining, and rewarding the human resources of their campus to find a balance to address student, institutional, and societal needs. Boyer (1990) recognizes that

> American higher education is imaginative and creative enough to support and reward not only those scholars uniquely gifted in research but also those who excel in the integration and application of knowledge, as well as those especially adept in the scholarship of teaching. (p. 27)

Even faculty with an emphasis on disciplinary research can be expected to participate in the teaching-learning community. As Birnbaum (1988) would describe them, the "cosmopolitans" and "locals" (p. 19) need to work together.

Impacting student learning outcomes may well be the single most important function of a faculty member. The education of students is certainly the most basic function of a university, whether it be educating them in the search for truth or in the preparation for societal roles, and whether it be through research, teaching or service. It is imperative that institutions of higher education design appropriate means to 1) "produce the

diverse and abstract higher-order cognitive outcomes society demands" (Gardiner, 1994, p. 114); and 2) engage in the pursuit of knowledge (Brubacher, 1982).

At the same time, it is also imperative that institutions of higher education find an organizational mechanism to weave together the institutional entities and activities influencing student learning and development and to equalize the responsibility for student learning outcomes across institutional lines. Faculty, administrators, student affairs educators, staff, and students should all be held accountable. It would be inappropriate for faculty alone to bear all of the responsibility for student learning outcomes or for the faculty reward system to be based solely on the accomplishment of such a pervasive institutional priority. Davis and Murrell (1993) reiterate that "a discussion of the mutual obligations of all members of the academic community is a prerequisite to restoring the academy's balance and clarity of purpose" (p. 8). Our responsibility to achieve student learning outcomes for the benefit of society falls on higher education as a whole.

Furthermore, the current reward system must be realigned to reflect a more learning-centered collegiate environment. "Faculty recruitment and reward processes may have to be redesigned to reflect an institution's serious interest in student learning in all areas" (Pascarella & Terenzini, 1991, p. 649). Since rewarding faculty for student outcomes is difficult, it may be more appropriate to emphasize rewards for quality teaching (measuring the measurable), and to avoid "punishing" good teachers for

limited research by withholding promotions or tenure. Consequently, "faculty expectations and related evaluation (must) not only be *broadened* but... be *individualized* and *continuous* as well" (Boyer, 1990, p. 50).

According to Gardiner (1994), higher education must develop 1) a clear mission and goals; 2) systematic assessments to "provide evidence of accountability" (p. 109); and a coherent curriculum which all reflect the value placed on the teaching-learning process. "The presumption, of course, is that such values would also be reflected subsequently in promotion, tenure, and compensation decisions" (Pascarella & Terenzini, 1991, p. 650). Given the historically ambiguous nature of higher education organizations (Birnbaum, 1988), this appears to be a daunting task. However, despite the magnitude of the need to define and evaluate the teaching-learning process, it is a task which must be undertaken, if higher education is to respond to the needs of today's students and the expectations of today's society.

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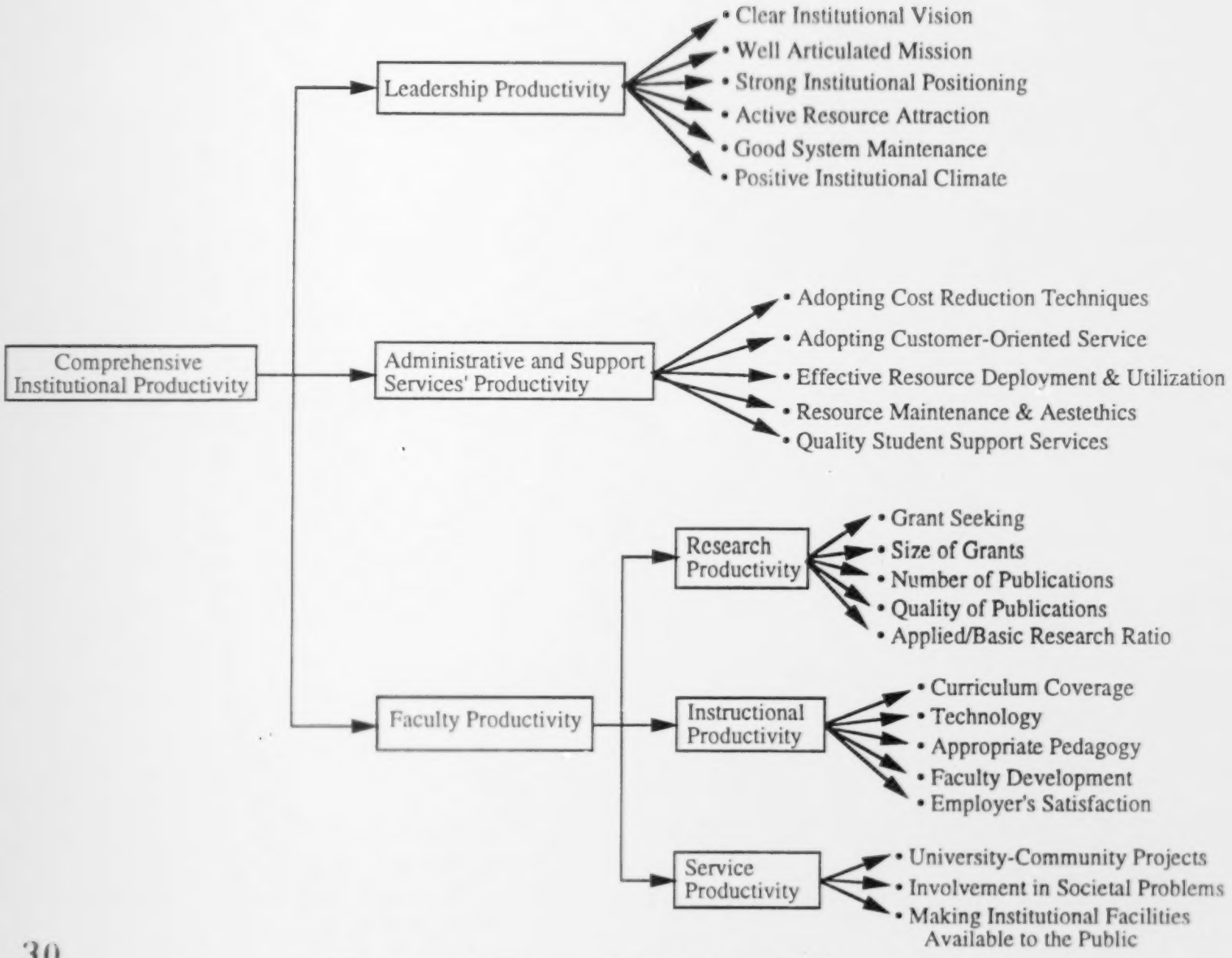

A Comprehensive Measure of Institutional Productivity